

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A method of sensing multiple parameters, the method comprising:  
    implanting an implantable sensor at a single site in a patient, the implantable sensor having a housing within which are disposed a plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements operable through electrical communication with an external controller via ~~an individual interconnect~~ a respective interconnect of a plurality of interconnects, each of the interconnects independently connected to a respective one of the implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements allowing for sensing at least one of a respective biological parameter, a respective physiological parameter, and a respective analyte; and  
    reading an output from at least one implantable sensing element of the plurality of implantable sensing elements,  
    wherein a plurality of parameters are read from the implantable sensor at the single site, site, and  
    wherein the output read from said at least one implantable sensing element of the plurality of implantable sensing elements is a quantifiable value; ~~and~~  
    ~~wherein each implantable sensing element of the plurality of implantable sensing elements comprises a respective power supply, wherein the power supply for each implantable sensing element is configured to supply power independent of the power supply for each other implantable sensing element and configured to supply power solely to the implantable sensing element of the plurality of implantable sensing elements.~~
2. (Previously Presented) The method of Claim 1, wherein at least one particular implantable sensing element of the plurality of implantable sensing elements is a biological parameter sensor.

3. (Previously Presented) The method of Claim 1, wherein at least one particular implantable sensing element of the plurality of implantable sensing elements is a physiological parameter sensor.
4. (Previously Presented) The method of Claim 1, wherein at least one particular implantable sensing element of the plurality of implantable sensing elements is an analyte sensor.
5. (Previously Presented) The method of Claim 1, wherein reading an output from said at least one implantable sensing element of the plurality of implantable sensing elements comprises reading an output from an implantable sensing element of the plurality of implantable sensing elements that responds to lactate.
6. (Previously Presented) The method of Claim 1, wherein reading an output from said at least one implantable sensing element of the plurality of implantable sensing elements comprises reading an output from an implantable sensing element of the plurality of implantable sensing elements that responds to blood oxygen saturation.
7. (Previously Presented) The method of Claim 1, wherein reading an output from said at least one implantable sensing element of the plurality of implantable sensing elements comprises reading an output from an implantable sensing element of the plurality of implantable sensing elements that responds to blood pressure.
8. (Previously Presented) The method of Claim 1, wherein reading an output from said at least one implantable sensing element of the plurality of implantable sensing elements comprises reading an output from an implantable sensing element of the plurality of implantable sensing elements that responds to glucose.

9. (Previously Presented) The method of Claim 1, wherein reading an output from said at least one implantable sensing element of the plurality of implantable sensing elements comprises reading an output from an implantable sensing element of the plurality of implantable sensing elements that responds to temperature.

10. (Previously Presented) The method of Claim 1, wherein reading an output from said at least one implantable sensing element of the plurality of implantable sensing elements comprises reading an output from an implantable sensing element of the plurality of implantable sensing elements that responds to potassium.

11. (Previously Presented) The method of Claim 1, wherein reading an output from said at least one implantable sensing element of the plurality of implantable sensing elements comprises reading an output from at least one implantable sensing element of the plurality of implantable sensing elements that responds to pH.

12. (Original) The method of Claim 1, further comprising administering therapy to the patient based on the output read from the at least one implantable sensing element.

13. (Original) The method of Claim 12, wherein administering therapy comprises administering therapy for myocardial ischemia.

14. (Original) The method of Claim 12, wherein administering therapy comprises administering therapy for myocardial infarction.

15. (Original) The method of Claim 12, wherein administering therapy comprises administering therapy for angina.

16. (Original) The method of Claim 12, wherein administering therapy comprises adjusting a function of an implantable cardiovascular defibrillator disposed within the patient.

17. (Original) The method of Claim 12, wherein administering therapy comprises adjusting a placement of an implantable cardiovascular defibrillator disposed within the patient.

18. (Original) The method of Claim 12, wherein administering therapy comprises administering therapy for sepsis.

19. (Original) The method of Claim 12, wherein administering therapy comprises administering therapy for septic shock.

20. (Original) The method of Claim 12, wherein administering therapy comprises administering therapy for a patient receiving extracorporeal membrane oxygenation.

21. (Original) The method of Claim 12, wherein administering therapy comprises administering therapy for a patient undergoing cardiac bypass.

22. (Original) The method of Claim 12, wherein administering therapy comprises administering therapy for a patient during dialysis.

23. (Previously Presented) The method of Claim 1, further comprising classifying a severity of a condition of the patient based on the output read from said at least one implantable sensing element.

24. (Original) The method of Claim 1, wherein the patient is in a surgical environment.

25. (Original) The method of Claim 1, wherein the patient is in an intensive care environment.

26. (Currently Amended) A method of evaluating a patient, the method comprising:

implanting an implantable sensor in a patient, the implantable sensor having a housing within which are disposed a plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements operable through electrical communication with an external controller via an individual interconnect a respective interconnect of a plurality of interconnects, each of the interconnects independently connected to a respective one of the implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements allowing for sensing at least one of a respective biological parameter, a respective physiological parameter, and a respective analyte;

reading an output from at least one implantable sensing element of the plurality of implantable sensing elements; and

evaluating the patient based on the output read from the at least one implantable sensing element,

wherein a plurality of parameters are read from the implantable sensor at a single site, ~~and~~ wherein the output read from said at least one implantable sensing element of the plurality of implantable sensing elements is a quantifiable value, ~~and~~

~~wherein each implantable sensing element of the plurality of implantable sensing elements comprises a respective power supply, wherein the power supply for each implantable sensing element is configured to supply power independent of the power supply for each other implantable sensing element and configured to supply power solely to the implantable sensing element of the plurality of implantable sensing elements.~~

27. (Previously Presented) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient based on an output from a particular implantable sensing element of the plurality of implantable sensing elements that responds to lactate.

28. (Previously Presented) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient based on an output from a particular implantable sensing element of the plurality of implantable sensing elements that responds to blood oxygen saturation.

29. (Previously Presented) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient based on an output from a particular implantable sensing element of the plurality of implantable sensing elements that responds to blood pressure.

30. (Previously Presented) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient based on an output from a particular implantable sensing element of the plurality of implantable sensing elements that responds to glucose.

31. (Previously Presented) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient based on an output from a particular implantable sensing element of the plurality of implantable sensing elements that responds to temperature.

32. (Previously Presented) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient based on an output from a particular implantable sensing element of the plurality of implantable sensing elements that responds to potassium.

33. (Previously Presented) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient based on an output from a particular implantable sensing element of the plurality of implantable sensing elements that responds to pH.

34. (Original) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient for myocardial ischemia.

35. (Original) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient for myocardial infarction.

36. (Original) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient for angina.

37. (Original) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient having an implantable cardiovascular defibrillator.

38. (Original) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient for sepsis.

39. (Original) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient receiving extracorporeal membrane oxygenation.

40. (Previously Presented) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient while the patient is undergoing a cardiac bypass.

41. (Original) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient during dialysis.

42. (Currently Amended) A method of sensing multiple parameters, the method comprising:  
implanting an implantable sensor at a single site in a patient, the implantable sensor having a housing within which are disposed a plurality of implantable sensing elements, each of the implantable sensing elements operable through electrical communication with an external controller via a respective one of a plurality of interconnects, each of the interconnects independently connected to a respective one of the implantable sensing elements; and

reading an output from at least one implantable sensing element of the plurality of implantable sensing elements,

wherein each implantable sensing element of the plurality of implantable sensing elements comprises a respective power supply, wherein the power supply for each implantable sensing element is configured to supply power independent of the power supply for each other implantable sensing element and configured to supply power solely to the implantable sensing element of the plurality of implantable sensing elements;

wherein a plurality of parameters are read from the implantable sensor at the single site, and

wherein the output read from said at least one implantable sensing element of the plurality of implantable sensing elements is a quantifiable value.

43. (Previously Presented) A method of sensing multiple parameters, the method comprising:

implanting an implantable sensor at a single site in a patient, the implantable sensor having a housing within which are disposed a plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements operable through electrical communication with an external controller having a plurality of interconnects, each of the plurality of interconnects independently connected to a respective one of the plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements allowing for sensing at least one of a respective biological parameter, a respective physiological parameter, and a respective analyte; and

reading an output from at least one implantable sensing element of the plurality of implantable sensing elements,

wherein a plurality of parameters are read from the implantable sensor at the single site,

wherein the output read from said at least one implantable sensing element of the plurality of implantable sensing elements is a quantifiable value, and

wherein the plurality of implantable sensing elements comprises a lactate sensing element measuring a parameter for blood lactate level, a blood oxygen saturation sensing element



measuring a parameter for blood oxygen level, and a pH level sensing element measuring a parameter for pH level.

44. (Previously Presented) The method of Claim 43, further comprising the step of administering therapy for myocardial ischemia to the patient based on the output read from the at least one implantable sensing element.

45. (Previously Presented) The method of Claim 43, further comprising the step of administering therapy for myocardial infarction or angina to the patient based on the output read from the at least one implantable sensing element.

46. (Previously Presented) The method of Claim 43, further comprising the step of implanting an implantable cardiovascular defibrillator (ICD) into the patient and administering defibrillation on the patient based on the output read from the at least one implantable sensing element.

47. (Previously Presented) The method of Claim 43, further comprising the step of administering therapy for sepsis or septic shock to the patient based on the output read from the at least one implantable sensing element.

48. (Previously Presented) The method of Claim 43, further comprising the step of administering therapy for extracorporeal membrane oxygenation (ECMO) to the patient based on the output read from the at least one implantable sensing element.

49. (Previously Presented) The method of Claim 1, wherein the individual interconnect between each implantable sensing element of the plurality of implantable sensing elements and the external controller does not pass through any other implantable sensing element of the plurality of implantable sensing elements.

50. (Previously Presented) The method of Claim 26, wherein the individual interconnect between each implantable sensing element of the plurality of implantable sensing elements and the external controller does not pass through any other implantable sensing element of the plurality of implantable sensing elements.

51. (Previously Presented) The method of claim 1,  
wherein the external controller is external to the housing of the implantable sensor; and  
wherein the individual interconnect between each implantable sensing element of the plurality of implantable sensing elements and the external controller is separate from all other individual interconnects for every other implantable sensing element of the plurality of implantable sensing elements on a corresponding communication path from the implantable sensing element to the external controller.

52. (Previously Presented) The method of claim 26,  
wherein the external controller is external to the housing of the implantable sensor; and  
wherein the individual interconnect between each implantable sensing element of the plurality of implantable sensing elements and the external controller is separate from all other individual interconnects for every other implantable sensing element of the plurality of implantable sensing elements on a corresponding communication path from the implantable sensing element to the external controller.

53. (Previously Presented) The method of claim 43,  
wherein the external controller is external to the housing of the implantable sensor; and  
wherein each respective individual interconnect between each implantable sensing element of the plurality of implantable sensing elements and the external controller is separate from all other individual interconnects of the plurality of individual interconnects on a corresponding communication path from the implantable sensing element to the external controller.

54. (Previously Presented) The method of claim 42,  
wherein each implantable sensing element of the plurality of implantable sensing elements is operable through electrical communication with an external controller via a respective individual interconnect of a plurality of individual interconnects.
55. (Previously Presented) The method of claim 42,  
wherein each implantable sensing element of the plurality of implantable sensing elements allows for sensing at least one of a respective biological parameter, a respective physiological parameter, and a respective analyte.
56. (Previously Presented) A method of claim 42, wherein each implantable sensing element is electrically connected to an electrical conductor that extends out of the housing.
57. (Previously Presented) A method of claim 42, wherein each implantable sensing element is electrically connected to an electrical conductor that is electrically connectable to a remote device outside of the housing.
58. (Previously Presented) A method of claim 42, wherein each implantable sensing element is electrically connected to an electrical conductor that is electrically connectable to a controller.
59. (Previously Presented) A method of claim 1, wherein each implantable sensing element is coupled by wire for electrical communication with the external controller.
60. (Previously Presented) A method of claim 26, wherein each implantable sensing element is coupled by wire for electrical communication with the external controller.
61. (Previously Presented) A method of claim 43, wherein each implantable sensing element is coupled by wire for electrical communication with the external controller.

62. (New) The method of claim 1, wherein each of the implantable sensing elements of the comprises a respective power supply of a plurality of power supplies, wherein the respective power supply of each of the implantable sensing elements is for powering the implantable sensing element.

63. (New) The method of claim 26, wherein each of the implantable sensing elements of the comprises a respective power supply of a plurality of power supplies, wherein the respective power supply of each of the implantable sensing elements is for powering the implantable sensing element.

64. (New) The method of claim 42, wherein each of the implantable sensing elements of the comprises a respective power supply of a plurality of power supplies, wherein the respective power supply of each of the implantable sensing elements is for powering the implantable sensing element.